

Does private schooling narrow wealth inequalities in learning outcomes? Evidence from East
Africa

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Abstract

In many low- and lower-middle-income countries, private schools are often considered to offer better quality of education than government schools. Yet, there is a lack of evidence to date on their role in reducing inequalities: namely, the extent to which private schooling improves learning among the most disadvantaged children. Our paper uses household survey data from Kenya, Tanzania, and Uganda to identify whether any observed impact of private schooling on core literacy and numeracy skills differs according to children's household wealth. We demonstrate wealth gaps in access to private schooling, and use inferential models to account for observable differences between those who do and do not enrol in private schools. In Kenya and Uganda, we find that private schooling appears to improve the chances of children learning relative to their peers in government schools, but the chances of the poorest children learning in private schools remains low and is at best equivalent to the richest learning in government schools. In Tanzania, private schooling does not seem to improve poorer children's learning, whereas it does for richer children. These findings raise a caution about the extent to which private provision can help narrow learning inequalities.

Keywords: education policy; inequality; learning outcomes; private schooling; Kenya; Tanzania; Uganda; East Africa

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Introduction

Equitable learning outcomes are a key aspect of the education Sustainable Development Goals (SDG). The SDGs emphasise the importance of all children and young people acquiring basic numeracy and literacy skills, ensuring that the most disadvantaged are not left behind. Consequently, an important concern for policy research is how best to organize education systems to achieve this.

Among the most contentious debates within education policy is whether private provision of schools is likely to aid these goals. There is no doubt that private schooling has proliferated over recent decades. In many low- and lower-middle-income countries, students attending private schools are found to have better learning outcomes than students in government schools, on average. However, the extent to which the learning gain for those in private schools is attributable to the schools themselves is still ambiguous in most of the available research (Day Ashley et al., 2014). The principal source of this ambiguity is potential selection bias: to estimate the impact of private schooling on learning outcomes, it is necessary to account for differences between children who enrol in private schools and children who do not.

In this article, our aim is to advance research in this field in a number of ways. First, we put equity at the forefront of our analyses, meaning that we focus not only on the impact of private schooling on learning, but whether any impact differs for children from more disadvantaged backgrounds. Second, we use inferential methods to provide estimates of the impact of private schooling on learning outcomes, thus attempting to account for observed

differences between children enrolled in private and government schools. Third, in contrast to the more common focus on South Asia, our data come from East Africa (namely, Kenya, Tanzania, and Uganda), a region that has heretofore received far less research attention on the topic of private schooling.

In line with previous research, our findings indicate that private schooling leads to a greater chance of children learning; on average, in Kenya, Tanzania, and Uganda among children aged 11–14, our model estimates suggest that private schools increase the likelihood of children learning basic numeracy and literacy skills by between 6 and 8 percentage points. However, our analyses indicate that private schooling does not narrow inequalities between the rich and poor for three reasons: first, the poor are far less likely to be able to access private schooling; second, even for those who do gain access to private school, their chances of learning remain low; and, third, any gain in learning that is achieved for the poorest at best only gives them the same chance of learning as the richest in government schools. In Tanzania, private schooling increases the chances of learning among children from rich households but not among those from the poorest households. For Kenya and Uganda, children from poorer households are less likely to be learning on average so, even though attending a private school increases their chances of learning, they still only have the same chance as children from wealthier households in government schools. Our findings suggest that private schooling does not help close the learning gap for the most disadvantaged, and does not help poor children reach even average rates of learning among more advantaged children.

Prior evidence on private schools, learning and equity

A recent rigorous review of the literature on private schooling finds that most of the inferential research on the impact of private schooling on learning outcomes has focused on

countries in South Asia. The rigorous review concluded that most of studies on learning outcomes recognises the difficulties in effectively taking account of differences in social background such that ‘it may be difficult to ascertain whether achievement advantage can be fully ascribed to private schools’ (Day Ashley et al. 2014: 14). Available quantitative studies in Pakistan find that private schooling has a positive effect on learning in comparison to government schools on average, after taking account of characteristics of children and households (Andrabi, Bau, Das, & Khwaja 2010; Andrabi, Das, Khwaja, & Zajonc 2011; Arif & Saqib 2003; Aslam 2009; Das, Pandey, & Zajonc 2006), although Arif and Saqib (2003) note that in some districts public schools performed better than private schools. The majority of quantitative studies focusing on India draw similar conclusions (Desai, Dubey, Vanneman, & Banerji 2009; French & Kingdon 2010; Goyal 2009; Kingdon 1996; Pal, 2010). There is, however, some countervailing evidence in India: Chudgar and Quin (2012) find that the improvement associated with private-school enrolment was no longer significant after they controlled for observable differences; and Muralidharan and Sundararaman (2015) and Singh (2015) both find only modest improvements in most learning outcomes.

There is not yet a commensurate body of inferential research on Eastern Africa, and the limited evidence that is available is more mixed. In Kenya, Bold, Kimenyi, Mwabu, and Sandefur (2013) find considerable differences in performance between students at private and government primary schools, of around a fifth, and that this gap persists even after using gender, district, and year fixed effects controls to account for selection biases in which children attend private school. However, the study has been criticised on the grounds that a significant proportion of students in the country do not reach grade 8, and those who dropout are likely to belong to the most socially disadvantaged groups (Day Ashley et al., 2015). Using multi-level

modelling, Dixon, Tooley, and Schagen (2013) find private schooling to be linked to better scores in mathematics and Swahili, but not in English, among children living in Kibera slum of Nairobi, Kenya. In contrast, Lassibille and Tan (2001) find no evidence that private schools outperform public schools in Tanzania at the secondary level, although the data used by the authors is now over 20 years old.

To the best of our knowledge, there are not yet equivalent inferential studies focusing on Uganda, although available data indicates that there is a gap in learning outcomes between children in private and government schools (Uganda National Examinations Board, 2015; Uwezo 2014b; Uwezo Tanzania 2013). In Uganda, 33% of Grade 3 children in private schools are able to read a story at a Grade 2 level, compared to 12% of Grade 3 children in government schools (Uwezo 2014b), and similar gaps are visible across a range of ages and grades (Mugo, Ruto, Nakabugo, & Mgalla, 2015). Even so, in absolute terms, learning outcomes are disappointing: overall, 45% of Ugandan pupils in Grades 3 to 7 who were in private schools were unable to read a text designed for Grade 2 classes (Uwezo, 2014b).

The research noted thus far engages with the impact of private schools on raising learning outcomes, but there is far less evidence on the extent to which it is sufficient to improve the chances of learning amongst the poorest. African countries follow the worldwide trend of sizeable learning inequalities between children from more and less advantaged households (UNESCO, 2014). In South Africa, by Grade 3 the poorest 60% are three grade levels behind the wealthiest quintile, and this increases to four grade levels by Grade 9 (Spaull & Kotze, 2015). Among eight year-olds in Ethiopia, the richest are four more times likely than the poorest to be able to read sentences (Rolleston, James, & Aurino, 2014). Cross-sectional data in East Africa

shows the learning of children from less advantaged households is at least one year behind that of children of the same age from more advantaged households (Jones & Schipper, 2015).

This inequality compels policy researchers to prioritise the educational needs of the most disadvantaged. The first equity concern commonly raised about private schools is whether they are accessible to the poorest. Research has noted growth in private school attendance among poorer children in some African countries, although there are differing opinions as to whether this has more to do with a preference for private schools (Dixon, Tooley, & Schagen, 2013) or satisficing in the absence of adequate government school provision (Stern & Heyneman, 2013; Härmä, 2013; Oketch et al., 2010). Nonetheless, the disparity in enrolment remains considerable, with conditions in Africa similar to those in South Asia, where the most disadvantaged children are less likely to be enrolled in a private school (Alcott & Rose, 2015b; Härmä & Rose, 2012; Muralidharan & Kremer, 2008). Among children aged 10–12 in Kenya, Tanzania, and Uganda, for example, the richest are over three times more likely than the poorest to attend a private school (Alcott & Rose, 2015b).

The second equity concern is whether private schools increase the chances of the most disadvantaged learning basic literacy and numeracy skills compared with the richest. Descriptive analysis suggests that private schooling does not overcome inequalities stemming from household disparities: across rural Pakistan, rural India, Kenya, Tanzania, and Uganda, even though those in private schools are more likely to be learning than those in government schools, disadvantaged children who attend private schools are less likely to learn the basics than more advantaged children attending government schools (Alcott & Rose, 2015a; Alcott & Rose, 2015b). It appears unlikely then that private schools can act as a panacea to inequalities in

learning. Still, whether they can help narrow the gap between wealthier and poorer children remains an important question.

Research question and data

Our goal is to determine whether private primary schooling can help narrow learning inequalities in East African countries. Consequently, we seek to respond to this in two stages:

1. In Kenya, Tanzania, and Uganda, do private primary schools increase the likelihood that children have learned basic literacy and numeracy skills?
2. Can the provision of private schools help reduce gaps in learning outcomes between more and less disadvantaged groups?

We use data from the Uwezo (‘capability’ in Swahili) household surveys conducted in Kenya, Tanzania, and Uganda in 2013. Conducted by Twaweza, Uwezo surveys follow the model established in India by the Pratham organisation’s Annual Status of Education Report: for each district in the country, surveyors visit 30 enumeration areas (broadly equivalent to villages), and 20 households within each enumeration area. Uwezo’s sampling frame is designed in collaboration with each country’s government statistical department to provide data that is representative at both the district and national levels (Uwezo, 2014a). Uwezo surveys collect information on parental background, indicators of household wealth, children’s enrolment status, and an independent assessment of learning for all children of school age. We delimit our sample to those aged 11–14, on the basis that these children should, in theory, have progressed to the end of primary school and learned the basics. This leaves sample sizes of 46,509, 37,007, and 22,050 for Kenya, Tanzania, and Uganda, respectively.

As an indicator of household wealth, for each country we group children into quartiles on the basis of a wealth index similar to that used by Saeed and Zia (2014). Our wealth index

comprises housing materials and the assets used by Jones and Schipper (2015) in defining household wealth: indoor lighting, running water, a television, a radio, a computer, and a phone. In each of the three countries, children from poorer households are less likely to receive private tuition or to have a mother who attended school (Table 1).

(Table 1)

In the Uwezo survey, families report whether each child in the household attends a government school, a private school, or is out of school. Within each country, poorer children are about three times more likely than wealthier children to be out of school, and poorer children are far less likely than wealthier children to be enrolled in a private school (Figure 1).

Private school enrolment rates also vary greatly across the three countries, from 2% on average in Tanzania to 11% in Kenya and 26% in Uganda; as such, a poor child in Uganda is more likely than a wealthy child in Tanzania to be enrolled in a private school. There is also great heterogeneity in the distribution of private schools within each country. In Kenya, for example, just 5% of children in the Western and North Eastern provinces are enrolled in private schools, compared to 15% in the Coast province and 36% in the capital, Nairobi.

The vast majority of non-state schooling in the three countries is for-profit. While systematic information is not available of the types of provision in the countries, 2012 Uwezo data from Kenya show that less than 2% of those enrolled in non-state education in the sample are in NGO-run or religious schools, while the vast majority are in private schools.¹

(Figure 1)

¹ Equivalent data from Uwezo are not available for Tanzania or Uganda, nor for Kenya beyond 2012.

For learning outcomes, children are assessed individually in literacy (both in Swahili and English in Kenya and Tanzania; only in English in Uganda) and numeracy, at up to four levels of competency in literacy and six in numeracy, all of which should have been acquired within two years of schooling (Jones & Schipper, 2015). Children are tested at each level sequentially until they reach a level they cannot complete; e.g., if they can recognize numbers but cannot perform subtraction, they are not then tested for the ability to perform multiplication (for further details, see Jones, Schipper, Ruto, & Rajani, 2014). From these learning assessments we derive our key learning outcome for whether children have achieved the basics: whether a child is both able to read a short paragraph and to perform multiplication.

A far higher proportion of children in Kenya (74%) are able to do the basics than in Tanzania (49%) or Uganda (38%) (Table 1). Even so, a common trend across the countries is that wealth inequalities in learning are considerable (Figure 2). By age 11, the percentage-point gap between wealthier and poorer children in learning the basics runs between 22 points in Uganda and 32 points in Kenya. This gap is maintained in each country, such that by age 14 the proportion learning the basics among poorer children is only just approaching the proportion among wealthier 11 year-olds; in other words, the poorest children are three years behind the wealthiest. The size of these learning disparities compels us to focus not only on aggregate improvements among the full population, but also on conditions among the most disadvantaged.

(Figure 2)

Methodology

It is possible to use a bivariate regression to estimate the impact of private schooling (P) on a learning outcome (L), which would produce a linear probability model as represented by:

$$L = \beta_0 + \beta_1 P + v \quad (1)$$

where the estimated parameter β_0 represents the proportion of children not in private schools who have learned the basics, the estimated parameter β_1 represents the average difference from this proportion among those in private schools, and v represents an error term that is normally distributed with a mean of zero. However, the estimate β_1 is only plausible if there is little concern of omitted variable bias. In other words, we would need to be confident that there are no substantive differences between children who do and do not enrol in private schools that would also be linked to learning.

This is highly unlikely, of course: in most countries, children from more advantaged households enrol in private schools at disproportionately high rates (e.g., Akyeampong & Rolleston, 2013; James & Woodhead, 2014; Srivastava, 2013), and this is the case in Kenya, Tanzania, and Uganda (Table 1). As Singh (2014) has shown, in Andhra Pradesh, India, there is already a learning gap between children attending private and government schools at the point of enrolment. Hence, in the absence of a randomised, or as good as randomised, allocation of students to different school types, it is important to control for indicators of bias between those who do and do not enrol in private schools.

We use multivariate, ordinary least-squares (OLS) regression to estimate the inferential models presented in this paper.² Our dependent variable of interest – whether a child has learned the basics – is dichotomous, and, in recent years, the convention in many social-science fields has been to estimate logistic regression models for outcomes of this nature (Hellevik, 2009; Mood, 2010). However, we prefer to use OLS regression for this study for two main reasons:

² In addition, we undertook preliminary analysis with instrumental variable methods but, as with past literature (e.g., French & Kingdon, 2010; Jones, 2013), found it difficult to identify an appropriate instrument. As such, the analysis was not considered sufficiently robust, especially when exploring heterogeneous effects for poorer and wealthier children. Further research would benefit from the consideration of identifying potential instruments at the time of collecting data.

OLS estimates are highly comparable to more complex procedures (e.g., Abadie, 2003; Hellevik, 2009), and they provide marginal effects directly without the need for supplementary computations (Angrist & Pischke, 2009).³

OLS regression estimates the average impact of an independent variable on an outcome whilst holding constant the impact of the other independent variables included in the model. As such, our regression models enable us to establish whether the predictive power of each factor still holds once controlling for a range of other variables. Letting L denote whether a child has learned the basics, we first estimate the following model for each country:

$$L = \gamma_0 + \gamma_1 P + \gamma_2 W2 + \gamma_3 W3 + \gamma_4 W4 + \gamma_5 X + \omega \quad (2)$$

in which P represents whether a child enrolls in a private school, $W2$ – $W4$ represents a child's household wealth quartile, X represents a matrix of control variables, γ_0 – γ_5 represent estimated parameters, and ω represents an error term. Then, in order to assess whether private schooling can help reduce learning inequalities, we re-estimate Equation 2 separately for the poorest and wealthiest quartiles in each country. If estimates of γ_1 differ significantly between models for the poorer and richer subgroups in a given country, this would indicate that private schooling has a differential impact on the chances of learning between these groups.⁴

In the matrix of control variables (X), we account for a range of variables that past research has identified as important to children's learning: whether a child is out of school

³ We also ran all models both as logistic and probit regressions. The significance levels and relative magnitude of the predictors remain the same.

⁴ We compare whether γ_1 differs between the models by seeing whether there is any overlap between their 95% confidence intervals. If there is not, we deem them to be significantly different. We also corroborated the findings from these separate models by estimating models on the full sample for each country with the addition of an interaction effect between private schooling and wealth quartile. Substantive findings were the same for both approaches.

(Alcott & Rose, 2015a; Lewin & Sabates, 2012), their gender (Aslam, 2009; Jones & Schipper, 2015;), their age (Hungu, Ngware, & Abuya, 2014), whether their mother attended school (Abuya, Mutisya, & Ngware, 2013; French & Kingdon, 2010), and whether the child receives private tuition (Alcott & Rose, 2015a; Aslam & Atherton, 2012). In addition, as with prior quantitative studies on developing countries (e.g., Jones & Schipper, 2015; Pal & Kingdon, 2010), we use district fixed effects, via dummy variables, to minimise bias stemming from unobserved heterogeneity within each country.⁵ This is likely to be important because none of the countries are internally homogenous: within each, children in different regions grow up with different conditions that will affect their educational opportunities. In Uganda for example, wealth, infrastructure, and population density vary considerable by district (Lincove, 2012; Uganda Bureau of Statistics, 2014); across countries, children in rural regions are likely to live further from any type of school, and there are large learning inequalities between children in rural and urban areas (Rose & Alcott, 2015).

We recognize that there are limitations to our analysis. The cross-sectional nature of the Uwezo data means that we cannot be certain about the temporal precedence of our explanatory and control variables. For example, in order to assess the impact of private schooling on learning, it is important also to account for the influence of private tuition; however, we cannot be certain about how parents' decisions to pay for private tuition interacts with their decision to pay for private schooling, e.g., whether one tends to follow the other, or vice versa. Also, household wealth influences a family's ability to pay for private tuition, but expenditure on private tuition also reduces the ability of households to afford the items from which we derive our wealth index.

⁵ For Kenya, Tanzania, and Uganda, the number of districts in the 2013 Uwezo data are 156, 131, and 80, respectively.

In addition, as the Uwezo dataset is household-based, it does not include some variables that are likely to be relevant for explaining learning outcomes. Notably, school factors are almost certainly important, such as teacher qualifications, teacher experience and class size. This means that our estimates remain prone to some forms of omitted variable bias, as is typical of OLS estimates based on survey data.

Findings

For each country, we first estimate a simple model controlling only for schooling status (Table 2: Models 1, 3, and 5 for Kenya, Tanzania, and Uganda respectively), which we refer to as ‘naïve’ models because they do not control for any potential confounding variables. In all three countries, private schooling has a positive and significant association with learning the basics. We then add control variables in Models 2, 4, and 6. Comparing these to the naïve models, the apparent impact of private schooling on learning the basics remains significant and positive in each country, although it reduces by at least a half in each case. For example, in Kenya the estimated impact of private schooling versus government schooling on the likelihood a child will have learned the basics reduces from 13 to 6 percentage points when adding our model controls. In Tanzania and Uganda, the estimates change from 23 to 8 and from 17 to 8 percentage points, respectively.

This change between the sets of models implies that many of our control variables are correlated with private school enrolment and so account in part for the raw difference in learning outcomes between children in private schools and children in government schools. To help explore the association with different control variables, we estimate a series of blocked regressions for each country (presented in the Appendix). These regression models indicate that among our control variables, those reducing the gap most are district fixed effects, household

wealth, and private tuition. Simply adding district fixed effects reduces the estimated impact of private schooling by 38% in Kenya, 42% in Uganda and 47% in Tanzania. This suggests that much of the overall difference in learning between children in private and government schools can be explained by disparities in learning between regions within each country. Even after controlling for district, gender, age, and mother's schooling, adding wealth controls further reduces the estimated impact of private schooling. The extent of this reduction runs between 14% in Uganda, 18% in Kenya and 25% in Tanzania, suggesting that, within districts, inequalities in household wealth account for much of the apparent boost provided by private schooling. Even with all other model controls, controlling for private tuition reduces the estimated impact of private schooling by a further 21% in Kenya, 8% in Tanzania, and 18% in Uganda.

(Table 2)

After accounting for many key control variables, private schooling still has a positive association with overall learning rates among the school-aged population; the average increase in the chances of learning the basics that is associated with private schooling compared to government schooling is between 6 and 8 percentage points across the countries. However, as demonstrated by Figure 2, it is important not only to analyse aggregated patterns for the full population but also specifically among the most disadvantaged. Thus, we also estimate separate models for the poorest and richest quartiles in each country (Table 3).

The extent to which private schooling affects learning for the poorest differs between the countries. For the poorest in Tanzania (Model 3), the coefficient for private schooling is not significantly different from zero, whereas for the wealthiest (Model 4) the coefficient for private schooling is significant and positive, at 11.7 percentage points. This indicates that private

schooling in Tanzania has no discernible impact on learning among children from poorer households, but it does have a positive impact on learning among children from wealthier households. For both Kenya (Model 1) and Uganda (Model 5), the coefficient for private schooling for the poorest is significant and positive, but neither is significantly different from the coefficient for private schooling among wealthier children (Models 2 and 6). This indicates that private schooling in these countries is positively related to learning for children from both poorer and wealthier households, but that this association does not vary between the groups.

(Table 3)

To help visualise these patterns, from the models in Table 3 we plot the estimated marginal impact of private schooling against government schooling on learning the basics for the poorest and wealthiest in each country (Figure 3). The thicker lines show model estimates of the average improvements; the thinner lines show model estimates of the largest plausible improvement at the 95% confidence level. Since we did not observe any significant association among the poorest children in Tanzania in Model 3, we do not plot any apparent change in the chances of learning for this group.

(Figure 3)

This visualisation helps frame the impact of private schooling in relation to policy considerations: learning gaps between the rich and poor, and the absolute chances of learning for the most disadvantaged. First, a focus on the impact of private schooling should not mask the fact that inequities stemming from household background are sizable: while private schooling seems to improve learning among poorer children in Kenya and Uganda, it does not close the gap between poorer children enrolled in private schools and wealthier children enrolled in government schools. In Uganda, for example, private schooling increases the average poor

child's chances of learning to 33%, but this compares to 50% for the richest in government schools. Second, by showing total chances of learning (rather than just changes in the chances of learning), we hope to refocus attention on the continuing challenge facing these countries, especially in Tanzania and Uganda. Even for those poorer children enrolled in private schools in these countries, fewer than 40% are learning the basics. In addition, the chances of learning are not great even among the most advantaged: in Tanzania around a quarter of wealthier children in private schools are still not learning the basics, and in Uganda this is over 40%.

Conclusion

As the focus of global education goals has shifted attention towards equitable learning outcomes, questions arise about how best to achieve this. One option that is increasingly considered in policy circles is to increase support for private schools. Our study makes a number of contributions to research on this topic. First, we help broaden the debate by presenting inferential analyses on a region, East Africa, that has thus far received limited research attention in comparison to South Asia. Second, while we control for varying conditions right down to the district level, our analysis provides countrywide patterns. Third, with household background information, we are able to examine whether the apparent impact of private schooling is equitable.

Our findings indicate that, on average, private schooling improves a child's chances of learning the basics in reading and writing. This is consistent with prior literature from a range of low- and lower-middle-income countries. However, we do not find evidence that private schools will help to close the gap in learning inequalities in the three East African countries included in the analysis. In Tanzania it appears that benefits accrue disproportionately among children from wealthier households, and in Kenya and Uganda benefits are similar across wealth groups. This

implies that private schooling is unlikely to help close the wide gaps that remain between rich and poor in each country.

It should also be recalled that the poorest are much less likely to be enrolled in private school in each of the three countries. Our evidence would suggest that initiatives aimed at expanding access to private schooling to these children (for example via voucher programmes) are unlikely to be the solution to narrowing learning gaps. Expanding private schooling in Tanzania would potentially exacerbate learning inequalities; in Kenya and Uganda it would maintain the current gaps between rich and poor, at best helping the proportion of the poor learning the basics to approach current chances among wealthier children in the government school sector.

The shortcomings of private schooling for poorer children may be attributable to constraints in access among more disadvantaged households, differences in the quality of private schools available to wealthier and to poorer households, or to the inability of private schools to mitigate other drivers of disadvantage. Our data precludes us from making definitive assertions on this, although there are some clues. Preliminary analysis on government schools in the Uwezo data and on private schools in the related ASER data from Pakistan suggest that poorer and wealthier children are attending different schools from one another, with very different resource levels, within each sector (Alcott & Rose, 2015b; Jamil, Mohammad, & Saeed, 2015). In addition, besides being able to spend more on school fees to attend better resourced schools, we find that wealthier households also tend to be located in more densely populated districts, where they tend to have the opportunity of multiple schooling options close by. It is, therefore, plausible that learning inequalities reflect to some extent disparities in access and choice available to the rich and poor living in different parts of each of the countries. Even taking these

issues into account, it would seem likely that factors beyond schooling have a strong impact on the different chances of children learning from poor and rich households. As such, any policy reforms need to address both the sources of inequalities within the school environment itself, and those that children bring to the school from their home and community background.

Moreover, even if policies could eliminate all barriers to private schools for poorer families, and guarantee they would be of a quality commensurate of those accessed by the more advantaged, the evidence suggests that private schools would be unlikely to offer a panacea. A significant proportion of wealthier children enrolled in private schools have not learned the basics even within a very conservative time frame. This suggests that all three countries' current private school systems, as with their government school systems, are flawed. For policymakers, transformation is more important than replication: simply expanding private school provision is unlikely to solve the global learning crisis.

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Table 1

Descriptive statistics for sample

	Able to do basics (%)	Enrolled in private school (%)	Enrolled in government school (%)	Out of school (%)	Mother attended school (%)	Receive private tuition (%)	N
<i>Kenya</i>							
All	74	11	84	5	72	35	46,509
Poorest	58	3	84	13	47	22	12,333
Wealthiest	81	17	78	4	78	42	11,735
<i>Tanzania</i>							
All	49	2	86	12	67	21	37,007
Poorest	38	1	83	17	57	9	10,063
Wealthiest	63	6	87	7	76	37	9,535
<i>Uganda</i>							
All	38	26	70	4	66	22	22,050
Poorest	26	11	80	9	52	14	5,653
Wealthiest	46	29	68	3	72	25	5,482

Source: Uwezo Kenya 2013, Uwezo Tanzania, and Uwezo Uganda 2013

Table 2

Model estimates for full sample

	<i>Kenya</i>		<i>Tanzania</i>		<i>Uganda</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
	Naïve	Controls	Naïve	Controls	Naïve	Controls
Enrolled in private school	12.7***	6.1**	23.0***	7.7***	17.1***	7.5***
95% confidence interval	(11.0, 14.3)	(4.3, 7.9)	(18.4, 27.6)]	(3.5 - 11.9)	(14.4, 19.8)	(5.0, 10.0)
<i>Wealth quartiles</i>						
2nd	—	0.7	—	2.5*	—	3.0*
3rd	—	4.7***	—	5.5***	—	8.6***
4th (wealthiest)	—	9.2***	—	11.0***	—	16.6***
Out of school	-25.9***	-21.7***	-22.3***	-21.3***	-17.9***	-20.4***
Private tuition	—	6.3***	—	10.0***	—	10.2***
Female	—	4.6***	—	3.2***	—	3.5***
Mother attended school	—	4.9***	—	5.0***	—	7.4***
<i>Age</i>						
12	—	9.6***	—	7.6***	—	7.4***
13	—	16.5***	—	16.3***	—	18.3***
14	—	21.9***	—	24.3***	—	29.0***
District fixed effects	No	Yes	No	Yes	No	Yes
<i>N</i>	46,509	46,509	37,007	37,007	22,050	22,050
<i>Adjusted R²</i>	0.028	0.142	0.027	0.147	0.032	0.181

Source: Uwezo Kenya 2013, Uwezo Tanzania 2013, Uwezo Uganda 2013

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. To account for the sampling design of Uwezo, in all models we use population weights and cluster standard errors at the village level.

Table 3

Model estimates of differential effects for poorer and wealthier children

	<i>Kenya</i>		<i>Tanzania</i>		<i>Uganda</i>	
	(1) Poorest	(2) Wealthiest	(3) Poorest	(4) Wealthiest	(5) Poorest	(6) Wealthiest
Enrolled in private school	9.4** (3.5 - 15.3)	5.8*** (3.6 - 8.0)	-5.9 (-18.5 - 6.8)	11.7*** (6.7 - 16.6)	7.4** (2.2 - 12.6)	7.3*** (3.2 - 11.5)
Out of school	-35.4*** (-39.8 - -31.0)	-7.9* (-14.1 - -1.7)	-26.1*** (-29.1 - -23.2)	-14.5*** (-20.1 - -8.8)	-22.0*** (-27.0 - -16.9)	-22.5*** (-31.7 - -13.2)
Private tuition	8.1*** (5.1 - 11.0)	3.8*** (1.8 - 5.9)	9.6*** (4.3 - 14.9)	11.0*** (7.6 - 14.5)	12.2*** (7.7 - 16.7)	11.2*** (6.7 - 15.7)
Female	4.4*** (2.5 - 6.2)	3.0*** (1.4 - 4.6)	2.0 (-0.4 - 4.3)	3.2** (1.0 - 5.4)	1.0 (-1.6 - 3.5)	3.3 (-0.3 - 6.9)
Mother attended school	4.4** (1.6 - 7.3)	3.9** (1.3 - 6.5)	3.8** (1.0 - 6.5)	4.4 (-0.0 - 8.9)	4.9*** (2.0 - 7.7)	7.8*** (3.5 - 12.2)
Age						
12	12.4*** (9.3 - 15.4)	5.8*** (3.0 - 8.5)	6.0*** (2.9 - 9.1)	7.6*** (4.0 - 11.3)	5.9*** (2.5 - 9.2)	10.1*** (5.1 - 15.1)
13	20.9*** (17.8 - 24.0)	10.3*** (7.4 - 13.1)	13.5*** (10.2 - 16.9)	16.0*** (12.2 - 19.9)	15.1*** (11.2 - 19.0)	20.1*** (14.7 - 25.5)
14	29.7*** (26.8 - 32.7)	14.1*** (11.4 - 16.8)	22.4*** (18.9 - 25.9)	20.9*** (17.2 - 24.5)	27.1*** (22.9 - 31.2)	31.0*** (25.4 - 36.6)
District fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	12,333	11,735	10,063	9,535	5,653	5,482
<i>Adjusted R</i> ²	0.186	0.092	0.144	0.119	0.143	0.200

Source: Uwezo Kenya 2013, Uwezo Tanzania 2013, Uwezo Uganda 2013

Notes: Lower and upper bounds of 95% confidence intervals are shown in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. To account for the sampling design of Uwezo, in all models we use population weights and cluster standard errors at the village level.

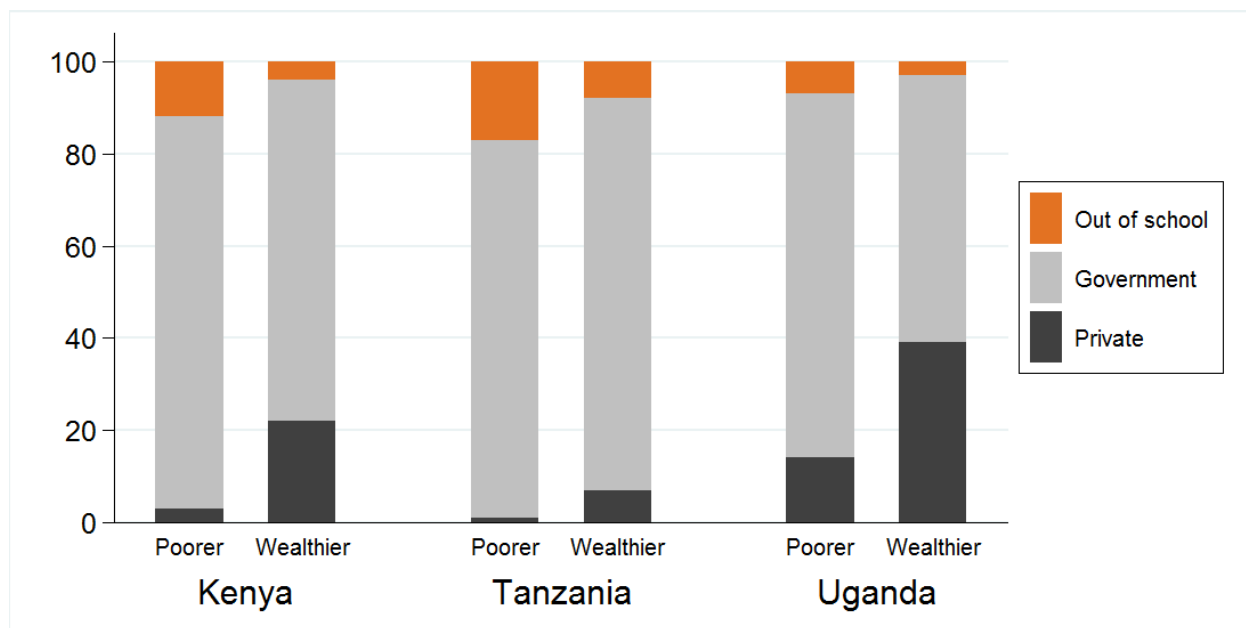


Figure 1. In Kenya, Uganda and Tanzania, poorer children are more likely to be out of school and wealthier children are more likely to be enrolled in private schools.

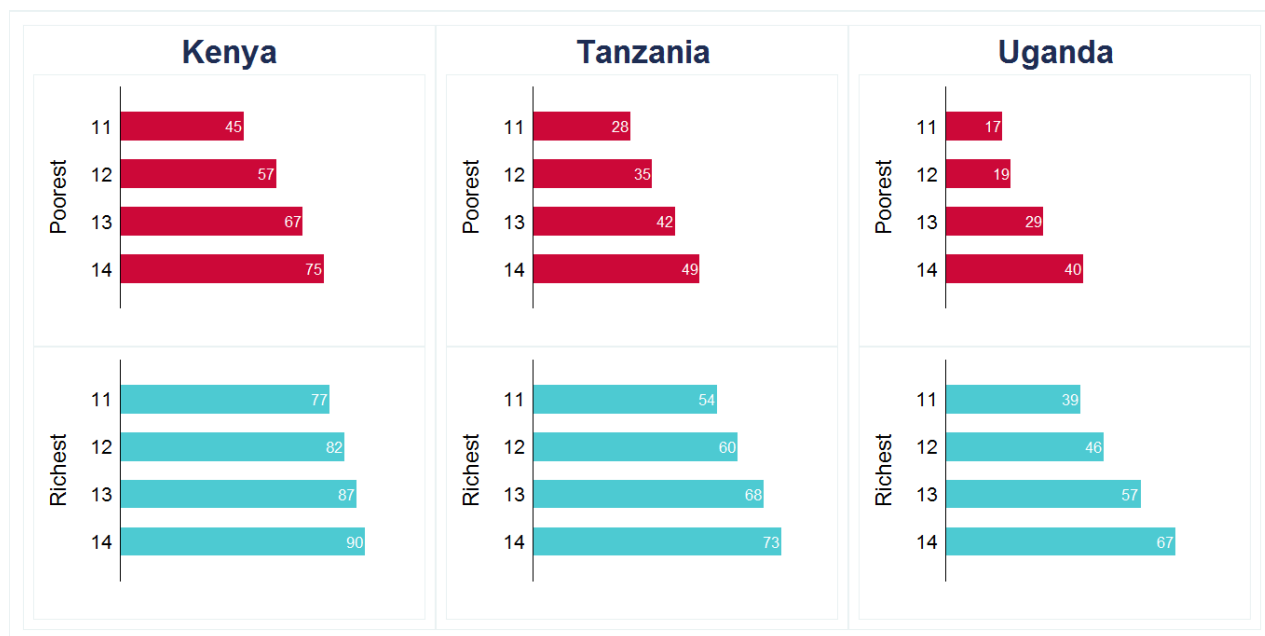


Figure 2. By age 14, the poorest children's chances of learning are three years behind those of the richest.

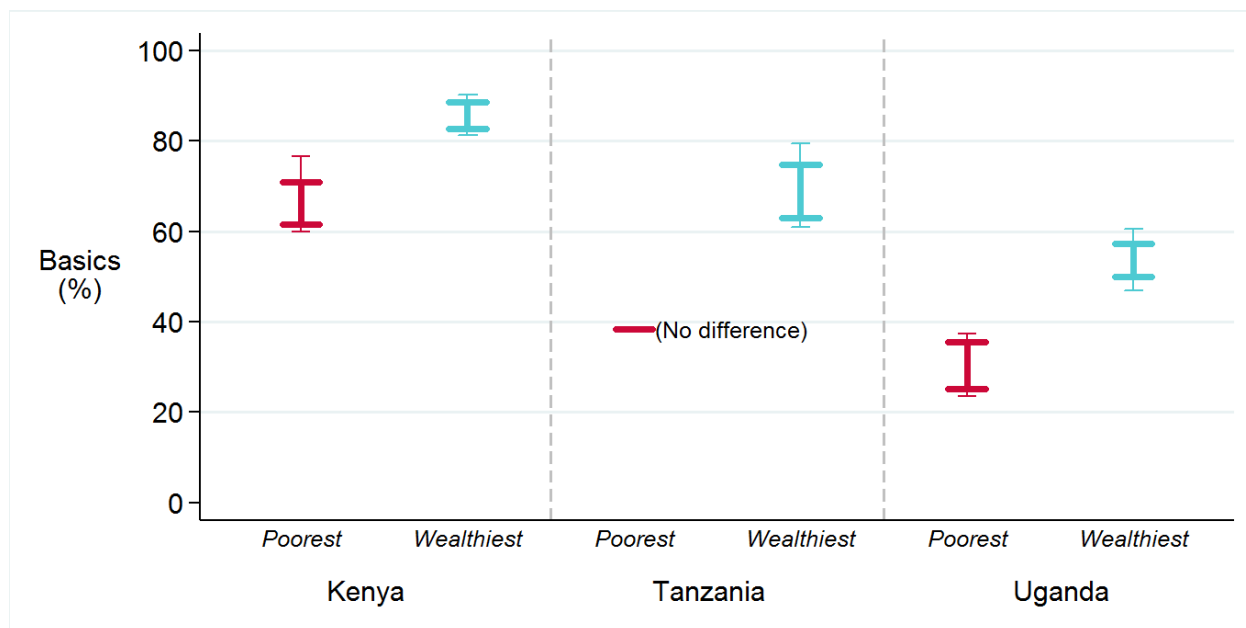


Figure 3. Model estimates of the average marginal improvement in test scores attributable to private schooling

Note: Thicker lines show model estimates of the average improvement; thinner lines shows model estimates of the largest plausible improvement at the 95% confidence level.

Appendix: block OLS model results for each country

Kenya	(1) Naïve	(2) + district FE	(3) + base controls	(4) + wealth controls	(5) + tuition
Private schooling	12.7*** (11.0 - 14.3)	7.9*** (6.1 - 9.7)	9.4*** (7.6 - 11.2)	7.7*** (5.9 - 9.5)	6.1*** (4.3 - 7.9)
Out of school	-25.9*** (-31.5 - -20.4)	-21.4*** (-25.6 - -17.2)	-22.1*** (-26.2 - -17.9)	-21.7*** (-25.9 - -17.6)	-21.0*** (-25.2 - -16.9)
Female			4.6*** (3.7 - 5.5)	4.6*** (3.7 - 5.5)	4.6*** (3.7 - 5.5)
Age 12			9.8*** (8.2 - 11.3)	9.8*** (8.3 - 11.4)	9.6*** (8.0 - 11.1)
Age 13			17.0*** (15.4 - 18.7)	17.0*** (15.3 - 18.6)	16.5*** (14.9 - 18.2)
Age 14			22.4*** (20.8 - 24.0)	22.5*** (20.9 - 24.1)	21.9*** (20.3 - 23.5)
Mother attended school			5.8*** (4.3 - 7.3)	5.0*** (3.5 - 6.5)	4.9*** (3.4 - 6.4)
2 nd wealth quartile				0.8 (-0.9 - 2.5)	0.7 (-1.0 - 2.5)
3 rd wealth quartile				5.0*** (3.2 - 6.7)	4.7*** (2.9 - 6.5)
4 th (top) wealth quartile				10.0*** (8.1 - 11.8)	9.2*** (7.4 - 11.0)
Private tuition					6.3*** (5.0 - 7.7)
<i>N</i>	46,509	46,509	46,509	46,509	46,509
<i>Adjusted R²</i>	0.03	0.10	0.14	0.14	0.14
District Fixed effects	No	Yes	Yes	Yes	Yes

** p<0.01, * p<0.05. Parentheses show 95% confidence intervals. Estimates use population weights and errors clustered at the village level.

Tanzania	(1) Naïve	(2) + district FE	(3) + base controls	(4) + wealth controls	(5) + tuition
Private schooling	23.0*** (18.4 - 27.6)	12.2*** (7.9 - 16.5)	10.9*** (6.7 - 15.0)	8.4*** (4.3 - 12.5)	7.7*** (3.5 - 11.9)
Out of school	-22.3*** (-24.7 - -19.9)	-19.9*** (-22.1 - -17.6)	-23.3*** (-25.5 - -21.1)	-22.6*** (-24.8 - -20.4)	-21.3*** (-23.5 - -19.1)
Female			3.3*** (2.2 - 4.4)	3.4*** (2.2 - 4.5)	3.2*** (2.1 - 4.3)
Age 12			7.7*** (6.0 - 9.4)	7.7*** (6.0 - 9.4)	7.6*** (6.0 - 9.3)
Age 13			16.4*** (14.6 - 18.2)	16.3*** (14.5 - 18.1)	16.3*** (14.6 - 18.1)
Age 14			24.4*** (22.6 - 26.3)	24.3*** (22.5 - 26.2)	24.3*** (22.5 - 26.2)
Mother attended school			6.0*** (4.2 - 7.8)	5.1*** (3.3 - 6.9)	5.0*** (3.2 - 6.8)
2 nd wealth quartile				2.7** (0.8 - 4.7)	2.5* (0.6 - 4.5)
3 rd wealth quartile				6.0*** (3.8 - 8.3)	5.5*** (3.2 - 7.7)
4 th (top) wealth quartile				12.8*** (10.4 - 15.2)	11.0*** (8.6 - 13.5)
Private tuition					10.0*** (7.8 - 12.3)
<i>N</i>	37,007	37,007	37,007	37,007	37,007
<i>Adjusted R</i> ²	0.03	0.10	0.13	0.14	0.15
District Fixed effects	No	Yes	Yes	Yes	Yes

** p<0.01, * p<0.05. Parentheses show 95% confidence intervals. Estimates use population weights and errors clustered at the village level.

Uganda	(1) Naïve	(2) + district FE	(3) + base controls	(4) + wealth controls	(5) + tuition
Private schooling	17.1*** (14.4 - 19.8)	10.0*** (7.4 - 12.6)	10.6*** (8.0 - 13.1)	9.1*** (6.7 - 11.6)	7.5*** (5.0 - 10.0)
Out of school	-17.9*** (-22.0 - -13.9)	-21.3*** (-25.0 - -17.5)	-22.4*** (-26.0 - -18.8)	-21.6*** (-25.2 - -18.0)	-20.4*** (-24.0 - -16.8)
Female			3.9*** (2.2 - 5.5)	3.7*** (2.1 - 5.4)	3.5*** (1.9 - 5.2)
Age 12			7.6*** (5.4 - 9.9)	7.5*** (5.2 - 9.7)	7.4*** (5.2 - 9.6)
Age 13			18.7*** (16.4 - 21.1)	18.6*** (16.3 - 21.0)	18.3*** (16.0 - 20.7)
Age 14			29.7*** (27.3 - 32.2)	29.4*** (27.0 - 31.8)	29.0*** (26.6 - 31.5)
Mother attended school			9.0*** (7.2 - 10.9)	7.9*** (6.0 - 9.7)	7.4*** (5.5 - 9.2)
2 nd wealth quartile				3.0* (0.7 - 5.2)	3.0* (0.7 - 5.2)
3 rd wealth quartile				9.0*** (6.6 - 11.4)	8.6*** (6.1 - 11.0)
4 th (top) wealth quartile				17.2*** (14.4 - 20.0)	16.6*** (13.8 - 19.4)
Private tuition					10.2*** (7.8 - 12.7)
<i>N</i>	22,050	22,050	22,050	22,050	22,050
<i>Adjusted R²</i>	0.03	0.10	0.16	0.17	0.18
District Fixed effects	No	Yes	Yes	Yes	Yes

** p<0.01, * p<0.05. Parentheses show 95% confidence intervals. Estimates use population weights and errors clustered at the village level.